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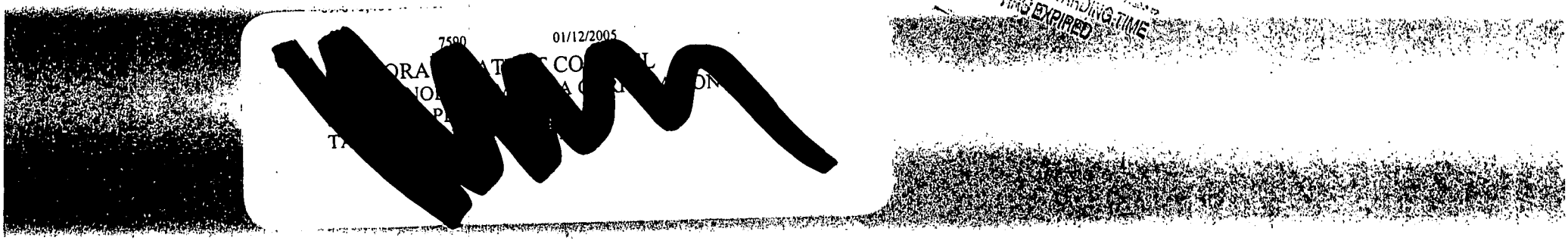


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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/678,480 | 10/02/2000 | Luis Aldaz | us 008631 | 6192 |

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| EXAMINER | |
|---|---|
| ODOM, CURTIS B | |
| **ART UNIT** | **PAPER NUMBER** |
| 2634 | |

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/678,480 | ALDAZ ET AL. | |
| | Examiner | Art Unit | |
| | Curtis B. Odom | 2634 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-54* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

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**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 October 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 9/7/2004 have been fully considered but they are not persuasive. The applicant states that Daudelin (previously cited in Office Action 6/1/2004) fails to recite that a multipath signal is evaluated for categorization into a state using "at least one SNR threshold" and that a determination is made as to whether the signal should be combined and/or deassigned using a "first signal-strength threshold" and a "second signal-strength threshold". However, Daudelin discloses that a multipath signal is evaluated for categorization into a state using a threshold based on a measure of signal quality (column 7, lines 24-50) and that a determination is made as to whether the signal should be combined and/or deassigned also uses threshold based on a measure of signal quality (column 6, line 36-column 7, line 9). Daudelin also discloses that this measure of signal quality can be the average power of the signal, the signal-to-noise ratio (SNR), or absolute power of the signal (column 2, lines 5-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that since the thresholds of Daudelin are signal quality dependent thresholds, then the thresholds of Daudelin could have been power (strength) thresholds or SNR thresholds as disclosed above. Thus, Daudelin recites the limitations stated above.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-8, 10-14, and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Daudelin (previously cited in Office Action 6/1/2004).

Regarding claim 1, Daudelin discloses a method of managing fingers for multipath signals in a wireless communication device (Fig. 4), the method comprising the steps of:

receiving (Fig. 4, block 401, column 4, lines 15-22) the multipath signals at the wireless communication device;

acquiring (Fig. 4, block 411, column 4, lines 33-40) one the multipath signals in a searcher portion of the wireless communication device;

determining (column 4, line 65-column 5, line 3) a SNR level of the one of the multipath signals, wherein determining a constituent signals includes a signal quality measurement (including SNR) to identify a constituent signal (column 2, lines 5-45);

evaluating (Fig. 6, column 7, lines 24-50) the one of the multipath signals for categorization into one of a plurality of states using at least one SNR threshold, wherein the states are as follows: 1) the signal quality is above an assignment or re-establishment threshold; 2) the signal quality is below a de-assignment threshold; and 3) the signal quality is below an assignment or re-establishment threshold, but above a de-assignment threshold and wherein the threshold is based on signal quality which can be SNR (see column 2, lines 5-19), therefore making the threshold an SNR threshold;

generating (Fig. 4, blocks 404 and 411, column 6, lines 44-49) a finger assignment by selectively providing the one of the multipath signals for a demodulation operation based upon its state

receiving (Fig. 4, block 404 and 411, column 4, line 65-column 5, line 45) the finger assignment from the searcher portion of the communication device;

determining (column 5, lines 4-7) a signal-strength of the finger assignment, wherein signal quality is a measure of signal strength (column 2, lines 12-15);

enabling (Fig. 4, block 404, column 6, lines 36-49 and Fig. 6, column 7, lines 29-42) the finger assignment for a combine operation if the signal strength for the finger assignment satiates a first signal-strength threshold (re-establishment threshold), wherein re-entering the assigned state enables the finger assignment for a combine operation (column 5, lines 4-7);

preventing (Fig. 4, block 410, column 7, lines 2-9) the finger assignment from being deassigned if the signal-strength of the finger assignment satiates a second threshold (de-assignment threshold) the second signal-strength threshold being less that the first signal-strength threshold (Fig. 6, column 7, lines 21-50).

Regarding claim 2, which inherits the limitations of claim 1, Daudelin discloses the plurality of states includes three hierarchical states (Fig. 6, column 7, lines 24-50), wherein the states are as follows: 1) the signal quality is above an assignment or re-establishment threshold; 2) the signal quality is below a de-assignment threshold; and 3) the signal quality is below an assignment or re-establishment threshold, but above a de-assignment threshold.

Regarding claim 3, which inherits the limitations of claim 1, Daudelin discloses the plurality of states includes an assigned state, wherein the signals associated with the assigned state are used for an active demodulation (column 5, lines 4-7), wherein in the assigned state the signal quality is above an assignment or re-establishment threshold (column 7, lines 24-50);

Regarding claim 4, which inherits the limitations of claim 1, discloses the plurality of states includes a potential state, wherein the signals associated with the potential state are not actively used for an active demodulation operation, but which may likely be candidates for a future demodulation operation (Fig. 6, column 7, lines 30-37), wherein in the potential state, the signal quality is below an assignment or re-establishment threshold, but above a de-assignment threshold as increasing towards a an assignment or re-establishment threshold.

Regarding claim 5, which inherits the limitations of claim 1, discloses the plurality of states includes a temporary state, wherein the signals associated with the temporary state are not actively used for an active demodulation operation, but which may likely be candidates for categorization in a potential state in a future evaluation (Fig. 6, column 7, lines 30-34), wherein in a temporary state the signal quality is below a de-assignment threshold.

Regarding claim 6, which inherits the limitations of claim 1, Daudelin discloses the multipath signal is categorized into a state according to SNR level of the multipath signal (column 7, lines 24-50), wherein signal quality can be SNR (column 2, lines 12-15).

Regarding claim 7, which inherits the limitations of claim 1, Daudelin discloses the multipath signal is categorized into a state according to a time period over which the SNR level of the multipath signal exists (Fig. 6, column 7, lines 24-50).

Regarding claim 8, which inherits the limitations of claim 3, Daudelin discloses enabling the multipath signal for demodulation if it is categorized in the assigned state (column 5, lines 4-7), wherein in the assigned state the signal quality is above an assignment or re-establishment threshold (column 7, lines 24-50).

Regarding claim 10, which inherits the limitations of claim 1, Daudelin discloses determining a time period over which the signal-strength of the finger assignment satiates the second threshold (Fig. 6, column 7, lines 24-50), wherein the time period is $t_{r1}$-$t_{r2}$.

Regarding claim 11, which inherits the limitations of claim 10, Daudelin discloses preventing the finger assignment from being deassigned if the time period satiates a time threshold (Fig. 6, column 7, lines 24-50), wherein the finger is prevented from being de-assigned if the time threshold $\Delta\ t_{r1}$ is satisfied.

Regarding claim 12, which inherits the limitations of claim 11, Daudelin discloses allowing the finger assignment to be de-assigned if the finger assignment fails to satiate the time threshold, wherein the finger assignment is de-assigned if $\Delta\ t_{r2}$ is not satisfied.

Regarding claim 13, which inherits the limitations of claim 1, Daudelin discloses allowing the finger assignment to be de-assigned if the finger assignment fails to satiate the second signal-strength threshold (column 7, lines 2-10).

Regarding claim 14, which inherits the limitations of claim 1, Daudelin discloses demodulating the finger assignment (column 5, lines 4-7).

Regarding claim 16, which inherits the limitations of claim 1, Daudelin discloses categorizing the finger assignment into one of a plurality of states based upon the signal-strength of the finger assignment (column 7, lines 24-50), wherein the states are assigned, reserved, and inactive.

Regarding claim 17, which inherits the limitations of claim 10, Daudelin further discloses categorizing the finger assignment into one of a plurality of states based upon the signal-strength of the finger assignment and based upon the time period over which the signal strength exists (column 7, lines 24-50).

Regarding claim 18, which inherits the limitations of claim 16, Daudelin discloses evaluating the finger assignment for the combine operation or for de-assignment based upon its state (column 5, lines 4-7 and 36-56).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daudelin (U. S. Patent No. 6, 072, 807).

Regarding claim 9, which inherits the limiations of claim 1, Daudelin does not disclose the steps of claim 1 are repeated to provide a quantity of multipath signals at least equivalent to a number of fingers in a receive portion of the wireless communication device. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include this feature because the more signals used for combination, the better the estimate of the transmitted signal in the receiver (column 6, lines 36-42). Thus, claim 9 does not constitute patentability.

Regarding claim 15, which inherits the limitations of claim 1, Daudelin does not disclose filtering the signal-strength of the finger assignment. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include this feature because filtering would remove unwanted noise and interference and allow a more efficient processing of the signal. Thus, filtering a signal does not constitute patentability.

6. Claims 19-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daudelin (previously cited in Office Action 6/1/2004) in view of Langberg et al. (previously cited in Office Action 6/1/2004).

Regarding claim 19, Daudelin discloses all of the subject matter of claim 19 as described in the previous rejection (see rejection of claim 1) including a wireless communication device (Fig. 4) for managing multipath signals and for managing finger assignment, the communication device comprising:

a searcher (Fig. 4, block 411) adapted to scan for multipath signals;

a transceiver coupled to the searcher (Fig. 4, block 407);

a processor (column 4, block 404), the processor coupled to the searcher; and

a device (Fig. 4, block 400) to perfoms the steps of:

receiving (Fig. 4, block 401, column 4, lines 15-22) the multipath signals at the wireless communication device;

acquiring (Fig. 4, block 411, column 4, lines 33-40) one the multipath signals in a searcher portion of the wireless communication device;

determining (column 4, line 65-column 5, line 3) a SNR level of the one of the multipath signals, wherein determining a constituent signals includes a signal quality measurement (including SNR) to identify a constituent signal (column 2, lines 5-45);

evaluating (Fig. 6, column 7, lines 24-50) the one of the multipath signals for categorization into one of a plurality of states using at least one SNR threshold, wherein the states are as follows: 1) the signal quality is above an assignment or re-establishment threshold; 2) the signal quality is below a de-assignment threshold; and 3) the signal quality is below an assignment or re-establishment threshold, but above a de-assignment threshold and wherein the thresholds are based on signal quality which can be SNR (see column 2, lines 5-19), therefore making the threshold an SNR threshold;

generating (Fig. 4, blocks 404 and 411, column 6, lines 44-49) a finger assignment by selectively providing the one of the multipath signals for a demodulation operation based upon its state

receiving (Fig. 4, block 404 and 411, column 4, line 65-column 5, line 45) the finger assignment from the searcher portion of the communication device;

determining (column 5, lines 4-7) a signal-strength of the finger assignment, wherein signal quality is a measure of signal strength (column 2, lines 12-15);

enabling (Fig. 4, block 404, column 6, lines 36-49 and Fig. 6, column 7, lines 29-42) the finger assignment for a combine operation if the signal strength for the finger assignment satiates a first signal-strength threshold (re-establishment threshold), wherein re-entering the assigned state enables the finger assignment for a combine operation (column 5, lines 4-7);

preventing (Fig. 4, block 410, column 7, lines 2-9) the finger assignment from being deassigned if the signal-strength of the finger assignment satiates a second threshold (de-assignment threshold) the second signal-strength threshold being less that the first signal-strength threshold (Fig. 6, column 7, lines 21-50).

Daudelin does not disclose steps of the method are written as a computer program product with a computer readable storage medium.

However, Langberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in a computer-readable medium. The computer readable medium is an electronic, magnetic, optical, or other physical device or means that can contain or store a computer program for use by or in connection with a computer-related system or method (note column 3, lines 51-65). One skilled in the art at the time the invention was made would have clearly recognized that the method of Daudelin would have been implemented into software. The implemented software would perform the same function of the hardware for less expense, greater adaptability, and greater

flexibility. Therefore, it would have been obvious to have used the software in Daudelin as taught by Langberg et al. in order to reduce cost and improve the adaptability and flexibility of the communication system.

Regarding claims 20-36, which depend on claim 19, the claimed device includes features corresponding to the above rejection of claims 2-18 which is applicable hereto.

Regarding claims 37-54, Daudelin discloses all of the subject matter as described in the previous rejection (see rejection of claims 1-18), except for the method written as a computer program product with a computer readable storage medium.

However, Langberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in a computer-readable medium. The computer readable medium is an electronic, magnetic, optical, or other physical device or means that can contain or store a computer program for use by or in connection with a computer-related system or method (note column 3, lines 51-65). One skilled in the art at the time the invention was made would have clearly recognized that the method of Daudelin would have been implemented into software. The implemented software would perform the same function of the hardware for less expense, greater adaptability, and greater flexibility. Therefore, it would have been obvious to have used the software in Daudelin as taught by Langberg et al. in order to reduce cost and improve the adaptability and flexibility of the communication system.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis B. Odom whose telephone number is 571-272-3046. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Curtis Odom
January 4, 2005

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